

**Naval Air Station Brunswick
Cumberland County
Brunswick, Maine
A-268-71-AB-A (SM)**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #1**

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. Naval Air Station Brunswick (NASB) located in Brunswick, Maine was issued Air Emission License A-268-71-AA-R on December 7, 2004 permitting the operation of emission sources associated with their military flight operations facility.
2. NASB has requested an amendment to their license in order to include the licensing of two hot water heaters and one emergency generator and to revise the maximum capacities of several licensed boilers and make-up air units.

B. Emission Equipment

NASB is licensed to operate the following equipment:

Fuel Burning Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate</u>	<u>Fuel Type, % sulfur</u>
Hangar 1, Boiler #1	5.50	39.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Hangar 1, Boiler #2	5.50	39.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Hangar 1, Boiler #3	5.50	39.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Hangar 5, Boiler #1*	5.0	35.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Hangar 5, Boiler #2*	5.0	35.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate</u>	<u>Fuel Type, % sulfur</u>
Hangar 5, Boiler #3*	5.0	35.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Hangar 5, Boiler #4*	5.0	35.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Hangar 5, Water Heater**	1.0	7.1 gal/hr	#2 fuel oil / #1 fuel oil /diesel fuel, 0.50%
Hangar 6, Boiler #1	3.0	2,920 scf/hr	natural gas, negligible
Hangar 6, Boiler #2	3.0	2,920 scf/hr	natural gas, negligible
Hangar 6, Boiler #3	3.0	2,920 scf/hr	natural gas, negligible
Hangar 6, Make-up #1*	10.0	9,709 scf/hr	natural gas, negligible
Hangar 6, Make-up #2*	10.0	9,709 scf/hr	natural gas, negligible
Hangar 6, Make-up #3*	2.06	2,000 scf/hr	natural gas, negligible
Hangar 6, Make-up #4*	2.06	2,000 scf/hr	natural gas, negligible
Bldg 25, Water Heater**	1.2	1,165 scf/hr	natural gas, negligible
Bldg 54, Boiler #1	2.2	15.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 86, Boiler #1	3.0	21.4 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 86, Boiler #2	3.0	21.4 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 86, Boiler #3	3.0	21.4 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 102, Make-up #1	1.5	1,460 scf/hr	natural gas, negligible
Bldg 211, Boiler #3	5.5	39.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 211, Boiler #4	6.2	44.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate</u>	<u>Fuel Type, % sulfur</u>
Bldg 211, Boiler #5	6.2	44.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 250, Boiler #1	6.0	42.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 250, Boiler #2	6.0	42.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 250, Boiler #3	6.0	42.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 250, Make-up #1	2.75	2,670 scf/hr	natural gas, negligible
Bldg 512, Boiler #1*	1.25	8.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 512, Boiler #2	1.25	8.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 512, Boiler #3	1.25	8.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 516, Boiler #1*	1.94	13.6 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 594, Boiler #1	1.5	10.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 594, Boiler #2	1.5	10.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 645, Boiler #1	1.7	12.1 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Bldg 750, Water Heater #1	1.8	1,770 scf/hr	natural gas, negligible
Bldg 750, Water Heater #2	1.8	1,770 scf/hr	natural gas, negligible
Bldg 750, Make-up #1	1.2	1,165 scf/hr	natural gas, negligible

Electrical Generation Equipment

<u>Equipment</u>	<u>Power Output (kW)</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur</u>
Engine #4 (Bldg 200)	230	2.2	16.4	diesel, 0.05%
Engine #18-1 (Bldg 295)	287	2.8	20.4	diesel, 0.05%
Engine #18-2 (Bldg 295)	287	2.8	20.4	diesel, 0.05%
Engine #18-3 (Bldg 295)	287	2.8	20.4	diesel, 0.05%
Engine #18-4 (Bldg 295)	287	2.8	20.4	diesel, 0.05%
Engine #26 (Bldg 594)	300	2.9	21.4	diesel, 0.05%
Engine #27 (Bldg 594)	230	2.2	16.4	diesel, 0.05%
Engine #29 (Bldg 645)	275	2.7	19.6	diesel, 0.05%
Engine #30 (Bldg 646)	100	1.0	7.2	diesel, 0.05%
Engine #31 (Bldg 86)	80	0.8	5.7	diesel, 0.05%
Engine #32 (Bldg 654)	125	1.2	8.9	diesel, 0.05%
Engine #42 (Bldg 292)	125	1.2	8.9	diesel, 0.05%
Engine #44 (spare)	60	0.6	4.3	diesel, 0.05%
Engine #46 (Bldg 537)	80	0.8	5.7	diesel, 0.05%
Engine #47 (Bldg 250)	900	8.8	64.1	diesel, 0.05%
Engine #48 (Bldg 554)	160	1.6	11.4	diesel, 0.05%
Engine #49 (Bldg 209)	400	3.9	28.5	diesel, 0.05%
Engine #50 (spare)	320	3.1	22.8	diesel, 0.05%

<u>Equipment</u>	<u>Power Output (kW)</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur</u>
Engine #51 (spare)	228	2.2	16.2	diesel, 0.05%
Engine #52 (spare)	200	2.0	14.2	diesel, 0.05%
Engine #53 (Hangar 6)	230	2.7	2,574 scf/hr	natural gas, negligible
Engine #55 (Main Gate)	75	0.8	5.8	diesel, 0.05%
Engine #56 (Dyer's Gate)	100	1.0	7.2	diesel, 0.05%
Engine #57 (Bldg 231)	350	4.9	4,760 scf/hr	natural gas, negligible
Engine #58 (Hangar 5)	300	2.9	21.4	diesel, 0.05%
Engine #59** (Bldg 201)	230	2.2	16.4	diesel, 0.05%

Process Equipment

<u>Equipment</u>	<u>Location</u>
Storage Tanks	Bldgs 650, 651 and various other locations
Fuel Dispensing	Bldgs 117, 538, 39
Deicing Operations	aircraft and runway
Degreasers	various
Painting Operations	Bldgs 86, 250 and Hangar 6
Jet Engine Test Cells	Bldg 611

* Denotes equipment whose maximum licensed capacity has changed.

** Denotes new equipment.

C. Application Classification

The modification of a minor source is considered a major modification based on whether or not expected emission increases exceed the “Significant Emission Levels” as defined in the Department’s regulations. This amendment will not increase emissions of any pollutant. Therefore, this modification is determined to be a minor modification and has been processed as such.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in Chapter 100 of the Department regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

B. New Water Heaters

Neither the Building 25 Water Heater nor the Hangar 5 Water Heater are greater than 10 MMBtu/hr and they are therefore not subject to the New Source Performance Standards (NSPS) Subpart Dc for steam generating units greater than 10 MMBtu/hr manufactured after June 9, 1989.

A summary of the BACT analysis for the new water heaters is the following:

1. The combined fuel usage for the boilers, water heaters and air make-up units of #2 fuel oil, #1 fuel oil, diesel fuel and natural gas shall not exceed the equivalent of 350,000 MMBtu/year, based on a 12 month rolling total.
2. Normally BACT for #2 or #1 fuel oil fired equipment includes a fuel sulfur limit of 0.35%. However, NASB has accepted a facility wide fuel limit which includes previously licensed equipment. It was determined that BACT would be to include these new units under the current fuel limit. Therefore, the maximum sulfur content of the fuel oil fired in the new water heaters shall not exceed 0.50% by weight.
3. Chapter 106 regulates fuel sulfur content, however in this case a BPT analysis for SO₂ determined a more stringent limit of 0.50% was appropriate and shall be used.
4. For fuel oil fired equipment greater than 3.0 MMBtu/hr, Chapter 103 regulates PM emission limits. The PM₁₀ limits and the PM limit for smaller equipment are derived from Chapter 103.

5. For natural gas fired equipment, a BPT analysis for PM determined that an emission limit of 0.05 lb/MMBtu was appropriate and shall be used. The PM₁₀ limits are derived from the PM limits.
6. NO_x emission limits for fuel oil fired units are based on data from similar boilers of this size and age.
7. NO_x emission limits for natural gas fired units are based on AP-42 data dated 7/98.
8. CO and VOC emission limits are based upon AP-42 data for natural gas firing dated 7/98. This data is most conservative and has been used for all fuel burning equipment.
9. Visible emissions from the fuel burning equipment shall not exceed 10% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a continuous 3-hour period.

C. Engine #59

A summary of the BACT analysis for Engine #59 is the following:

1. The facility's engines shall fire only diesel fuel with a maximum sulfur content not to exceed 0.05% by weight or natural gas.
2. The combined fuel usage to the engines of diesel fuel and natural gas shall not exceed the equivalent to 4,100 MMBtu/year heat input, based on a 12-month rolling total.
3. Chapter 106 regulates fuel sulfur content, however in this case a BPT analysis for SO₂ determined a more stringent limit of 0.05% was appropriate and shall be used.
4. The PM and PM₁₀ limits are derived from Chapter 103.
5. NO_x, CO, and VOC emission limits for diesel fired engines are based upon AP-42 data dated 10/96.
6. NO_x, CO, and VOC emission limits for natural gas fired engines are based upon AP-42 data dated 7/00.
7. Visible emissions from the engines shall each not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period.

D. Annual Emissions

NASB shall be restricted to the following annual emissions, based on a 12 month rolling total:

Total Licensed Annual Emission for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	PM₁₀	SO₂	NO_x	CO	VOC	HAP
Fuel Burning	21.0	21.0	88.1	61.3	14.4	0.9	-
Diesel Engines	0.3	0.3	0.1	9.1	2.0	0.7	-
Engine #53	0.1	0.1	-	1.5	2.5	0.2	-
Engine #57	0.1	0.1	-	2.7	4.6	0.4	-
Process Emissions	-	-	-	-	-	45.8	9.9
Total TPY	21.5	21.5	88.2	74.6	23.5	48.0	9.9

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-268-71-AB-A subject to the conditions found in Air Emission License A-268-71-AA-R and in the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

The following shall replace Conditions 16(C) and 16(D) of Air Emission License A-268-71-AA-R:

- C. Emissions shall not exceed the following limits. Compliance shall be demonstrated by stack testing upon request by the Department.

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Hangar 1, Boilers #1, #2, #3	PM	0.12	MEDEP Chapter 103, Section 2(B)(1)(a)
Hangar 5, Boilers #1, #2, #3, #4	PM	0.12	MEDEP Chapter 103, Section 2(B)(1)(a)
Hangar 6, Boilers #1, #2, #3	PM	0.05	MEDEP Chapter 115, BPT
Hangar 6, Make-up units #1, #2	PM	0.05	MEDEP Chapter 115, BPT
Hangar 6, Make-up units #3, #4	PM	0.05	MEDEP Chapter 115, BPT
Bldg 86, Boilers #1, #2, #3	PM	0.12	MEDEP Chapter 103, Section 2(B)(1)(a)
Bldg 211, Boilers #3, #4, #5	PM	0.12	MEDEP Chapter 103, Section 2(B)(1)(a)
Bldg 250, Boilers #1, #2, #3	PM	0.12	MEDEP Chapter 103, Section 2(B)(1)(a)

- D. Emissions shall not exceed the following for each unit. Compliance shall be demonstrated by stack testing upon request by the Department.
[MEDEP Chapter 115, BPT]

Emission Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Hangar 1, Boilers #1, #2, #3	0.66	0.66	2.77	1.93	0.45	0.03
Hangar 5, Boilers #1, #2, #3, #4	0.60	0.60	2.52	1.75	0.41	0.03
Hangar 5, Water Heater	0.12	0.12	0.50	0.35	0.08	0.01
Hangar 6, Boilers #1, #2, #3	0.15	0.15	--	0.29	0.25	0.02
Hangar 6, Make-up #1, #2	0.50	0.50	0.01	0.97	0.82	0.05
Hangar 6, Make-up #3, #4	0.10	0.10	--	0.20	0.17	0.01
Bldg 25, Water Heater	0.06	0.06	--	0.12	0.10	0.01
Bldg 54, Boiler #1	0.26	0.26	1.11	0.77	0.18	0.01
Bldg 86, Boilers #1, #2, #3	0.36	0.36	1.51	1.05	0.25	0.02
Bldg 102, Make-up #1	0.08	0.08	--	0.15	0.12	0.01
Bldg 211, Boiler #3	0.66	0.66	2.77	1.93	0.45	0.03
Bldg 211, Boilers #4, #5	0.74	0.74	3.12	2.17	0.51	0.03
Bldg 250, Boilers #1, #2, #3	0.72	0.72	3.02	2.10	0.49	0.03
Bldg 250, Make-up #1	0.14	0.14	--	0.27	0.22	0.01
Bldg 512, Boiler #1	0.15	0.15	0.63	0.44	0.10	0.01
Bldg 512, Boilers #2, #3	0.15	0.15	0.63	0.44	0.10	0.01
Bldg 516, Boiler #1	0.23	0.23	0.98	0.68	0.16	0.01
Bldg 594, Boilers #1, #2	0.18	0.18	0.76	0.53	0.12	0.01
Bldg 645, Boiler #1	0.20	0.20	0.86	0.60	0.14	0.01
Bldg 750, Water Heater #1, #2	0.09	0.09	--	0.18	0.15	0.01
Bldg 750, Make-up #1	0.06	0.06	--	0.12	0.10	0.01

The following shall replace Condition 17(E) of Air Emission License A-268-71-AA-R:

E. Emissions shall not exceed the following for each unit:
[MEDEP Chapter 115, BPT]

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Engine #4	0.27	0.27	0.12	9.88	2.13	0.78
Engines #18-1, 18-2, 18-3, 18-4	0.34	0.34	0.14	12.35	2.66	0.98
Engine #26	0.35	0.35	0.15	12.92	2.78	1.03
Engine #27	0.27	0.27	0.12	9.88	2.13	0.78
Engine #29	0.32	0.32	0.14	11.82	2.55	0.94
Engine #30	0.12	0.12	0.05	4.32	0.93	0.34
Engine #31	0.09	0.09	0.04	3.44	0.74	0.27
Engine #32	0.15	0.15	0.06	5.38	1.16	0.43
Engine #42	0.15	0.15	0.06	5.38	1.16	0.43
Engine #44	0.07	0.07	0.03	2.60	0.56	0.21
Engine #46	0.09	0.09	0.04	3.44	0.74	0.27
Engine #47	1.05	1.05	0.45	28.10	7.46	0.79
Engine #48	0.19	0.19	0.08	6.88	1.48	0.55
Engine #49	0.47	0.47	0.20	12.48	3.32	0.35
Engine #50	0.37	0.37	0.16	9.98	2.65	0.28
Engine #51	0.27	0.27	0.11	9.79	2.11	0.78
Engine #52	0.23	0.23	0.10	8.60	1.85	0.68
Engine #53	0.13	0.13	--	5.86	9.86	0.93
Engine #55	0.10	0.10	0.04	3.53	0.76	0.28

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Engine #56	0.12	0.12	0.05	4.32	0.93	0.34
Engine #57	0.25	0.25	--	10.83	18.23	1.72
Engine #58	0.35	0.35	0.15	12.92	2.78	1.03
Engine #59	0.27	0.27	0.12	9.88	2.13	0.78

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2005.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAWN R. GALLAGHER, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-268-71-AA-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 6/22/05

Date of application acceptance: 6/22/05

Date filed with the Board of Environmental Protection: _____

This Order prepared by Lynn Ross, Bureau of Air Quality.